

CLAIM AMENDMENTS

1. (Currently amended) A throttle device comprising a throttle body with an air-intake passage, a throttle valve for controlling the opening of said air-intake passage, and a motor for driving said throttle valve;

said throttle device further comprising:

a motor casing, which is molded integrally together with said throttle body and houses a motor body of said motor;

~~a portion which is on an output shaft side of said motor body and restrained in its radial direction in the vicinity of a motor insertion opening of said motor casing; and~~

a motor guide, formed around a motor insertion opening of said motor casing and configured by plural guide projections having respective arc-shaped inner faces, to guide a motor mounting flange of the motor body on an output shaft side of said motor when said motor is inserted into said motor casing and to restrain said motor body in a radial direction of said motor body; and

a portion, which is on a side opposite to the ~~output shaft~~ output shaft side of said motor body and provided with projections arranged in a circumferential direction of said motor body;

wherein said projections are formed in a single piece together with said motor body or attached to said motor body;

wherein a first inner diameter of said motor casing, from said motor insertion opening up to a predetermined point of a deep recess portion of said motor casing, is larger than an outer diameter of said motor body including said

projections, and a second inner diameter of said motor casing, from said predetermined point up to an end opposite to said motor insertion opening, is smaller than said outer diameter of said motor body including said projections, so that an inner surface of said motor casing has a contact starting position, where said projections come into contact with said inner surface being pressed against said inner surface upon motor insertion into said motor casing, and a subsequent insertion area, where said motor is fully inserted up to a full motor insertion position while said projections are pressed against said inner surface of said second inner diameter;

wherein said projections are arranged at specific spacings in a circumferential direction of said motor body and are deformed inwardly in a radial direction of said motor body by being pressed down by an inner surface of said motor casing when the motor is fully inserted so that said portion opposite to the output-shaft side in said motor body is held in its radial direction in said motor casing; and

wherein said motor is housed in a said motor casing so as to keep a non-contact state between an outer surface of said motor body and, other than said projections, an said inner surface of the motor casing; and

wherein a distance between an end of said motor guide opposite to a direction of motor insertion and said contact starting position, at which said projections come into contact with said inner surface of said motor casing by being pressed against said inner surface, is larger than a distance between said contact starting position and an end face of said flange on a side facing to the direction of said motor insertion when said projections are in said contact

starting position, so that said flange is guided by said motor guide before said projections reach said contact starting position at the time of motor full insertion.

2. (Currently amended) A ~~The~~ throttle device ~~comprising a throttle body with an air intake passage, a throttle valve for controlling the opening of said air intake passage, and a motor for driving said throttle valve; said throttle device further comprising: a motor casing which is molded integrally together with said throttle body and houses a motor body of said motor; a portion which is on an output shaft side in said motor body and restrained in its radial direction in the vicinity of a motor insertion opening of said motor casing; and a portion which is on a side opposite to the output shaft side in said motor body and provided with plural bent pieces or lugs arranged in a circumferential direction of said motor body; wherein said bent pieces or lugs are arranged at specific spacings in a circumferential direction of said motor body and are deformed inwardly in a radial direction of said motor body by being pressed down at a deep recess portion of said motor casing by an inner surface of said motor casing so that said portion opposite to the output shaft side in said motor body is held in its radial direction in said motor casing; and wherein said motor is housed in a motor casing so as to keep a non-contact state between an outer surface of said motor body and an inner surface of the~~ according to claim 21, wherein said projections are formed by bent pieces or lugs.

3. (Currently amended) The throttle device according to ~~claim 1~~ claim 21, wherein said projections are elastic projections.

4. (Canceled)

5. (Previously presented) The throttle device according to claim 2, wherein at least two of said bent pieces or lugs are formed in a single piece together with a component of said motor or so as to be attachable to said motor body.

6. (Currently amended) The throttle device according to ~~claim 1~~ claim 21, further comprising a motor guide formed in the vicinity of the ~~motor insertion~~ motor insertion opening of said motor casing;

wherein the ~~said portion on the output shaft side in said motor body~~ is designed so as to be clearance-fitted into an inner surface of said motor guide before said motor is fully inserted into said motor casing, ~~and the portion on the output shaft side in said motor body~~ casing and is restrained in its radial direction by said motor guide.

7. (Currently amended) The throttle device according to ~~claim 1~~ claim 21, further comprising a motor guide formed in the vicinity of the ~~motor insertion~~ motor insertion opening of said motor casing;

wherein a ~~motor mounting~~ motor mounting flange on the ~~output shaft~~ output shaft side of said motor body is designed so as to be clearance-fitted into

an inner face of said motor guide, and ~~the said portion on the output shaft side of~~
~~said motor body~~ is restrained in its radial direction by said motor guide.

8. (Original) The throttle device according to claim 2 further comprising a taper which is formed on at least a part of the inside surface of said motor casing so as to taper down from a motor insertion side toward a side opposite to said motor insertion side;

wherein said bent pieces or lugs have respectively curved outer surfaces, and said curved outer surfaces come into contact with said taper of said motor casing so that said bent pieces or lugs are pressed down.

9. (Canceled)

10. (Currently amended) The throttle valve driving motor according to ~~claim 9~~ claim 21, wherein said projections are flexibly deformable projections and formed in ~~one single~~ one single piece together with a bearing bracket or a yoke, ~~on the side opposite to the output shaft side of said motor.~~

11. (Currently amended) The throttle valve driving motor according to ~~claim 9~~ claim 21, wherein said projections comprise plural bent pieces ~~which are~~ arranged on an outer circumference of a bearing bracket at a portion opposite to the ~~output shaft~~ output shaft side of said motor body by sheet-metal ~~working;~~ working, and wherein a yoke of said motor is provided with notches for receiving said bent pieces when they are elastically deformed.

12. (Currently amended) The throttle valve driving motor according to ~~claim 9~~ claim 21, wherein said projections are plural lugs made by cutting and raising locally a yoke of said motor ~~and that are~~ arranged in a circumferential direction of said motor body.

13. (Currently amended) The throttle valve driving motor according to ~~claim 9~~ claim 11, wherein said projections are formed on a ring attached to an outer circumference of a yoke of said motor body.

14. (Currently amended) The throttle valve driving motor according to ~~claim 9~~ claim 21, wherein said projections are formed on a ring attached to an outer circumference of a bearing boss of said motor body.

15. (Canceled)

16. (Currently amended) The motor according to ~~claim 15~~ claim 13, wherein a size of said ~~motor output shaft side~~ bracket in a radial direction of said bracket is larger than said outer diameter of said yoke at ~~the~~ a position including said projections over the entire circumference of said bracket.

17. (Currently amended) The motor according to ~~claim 15~~ claim 13, wherein said outer diameter of said yoke at the position including said

projections has dimensions capable of pressing said projections against an inner wall of a motor casing for said motor.

18. (Currently amended) The motor according to ~~claim 15~~ claim 13, wherein said projections are formed by a part of said yoke.

19. (Currently amended) The motor according to ~~claim 15~~ claim 11, wherein said ~~motor output shaft side~~ bracket is provided with through holes used for screws for fixing said motor to a said motor casing.

20. (Currently amended) The motor according to ~~claim 15~~ claim 12, wherein said motor is housed in a said motor casing so as to keep a non-contact state between the outer surface of said yoke and, other than said projections, an inner surface of said motor casing.

21. (New) A throttle device comprising a throttle body with an air intake passage, a throttle valve for controlling a flow rate of air flowing through said air intake passage, and a motor for driving said throttle valve, said throttle valve further comprising:

a motor casing that is molded integrally together with said throttle body and houses a motor body of said motor;

a motor guide, formed around a motor insertion opening of said motor casing and configured by plural guide projections having respective arc-shaped inner faces, to guide a motor mounting flange of said motor body on an output

shaft side of said motor when said motor is inserted into said motor casing and to restrain said motor body in a radial direction of said motor body; and

a portion that is on a side opposite to said output shaft side of said motor body and provided with projections arranged in a circumferential direction of said motor body;

wherein said projections are formed in a single piece together with said motor body or attached to said motor body;

wherein a first inner diameter of said motor casing, from said motor insertion opening up to a predetermined point of a deep recess portion of said motor casing, is larger than an outer diameter of said motor body including said projections, and a second inner diameter of said motor casing, from said predetermined point up to an end opposite to said motor insertion opening, is smaller than said outer diameter of said motor body including said projections, so that an inner surface of said motor casing has a contact starting position where said projections come into contact with said inner surface being pressed against said inner surface during motor insertion into said motor casing, and a subsequent insertion area, where said motor is fully inserted up to a full motor insertion position while said projections are pressed against said inner surface of said second inner diameter; and

wherein a distance between an end of said motor guide opposite to a direction of said motor insertion and said contact starting position at which said projections come into contact with said inner surface of said motor casing by being pressed against said inner surface, is larger than a distance between said contact starting position and an end face of a flange on a side facing to the

direction of said motor insertion when said projections are in said contact starting position, so that said flange is guided by said motor guide before said projections reach said contact starting position at the time of motor full insertion.